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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER				
YOO, REGINA M				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/823,255

Applicant(s)

NAARUP, GARY J.

Examiner

REGINA YOO

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 71-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 71-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The amendment filed on 5/23/2008 has been received and claims 71-96 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/23/2008 has been entered.

Claim Objections

2. Claim 94 is objected to because of the following informalities: in line 2, "a" appears to more correctly be "an". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 81 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, it appears from the disclosure in the Specification and Drawings that the first cylinder is disposed within the second cylinder as opposed to the configuration specified in the claim language.
5. Claims 88-95 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, there is no written description within the disclosure in the Specification that the air purifier is "an airflow-preventing enclosure".
6. Claims 91-92 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the claim language that "a plate having an arcuate opening" or similar language thereof is not fully supported by the disclosure in the Specification as it appears that the structure with the said arcuate

opening is a box cover with the reference number 77 (see p.5 [0061] of the published application).

7. Claim 93 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, there is not adequate disclosure in the Specification that specifically teaches "an electrical connector" that is "removable and independent of the first and second cylinders".

8. Claim 94 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, there is not adequate support for "a chassis" within the Specification.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 71, 74, 77, 80-83, 85, 88, 93-94 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Botcharoff (3905920) in view of Meek (2738225), McMillan (3752748) and Hayes (3668990).

As to Claims 71, 77, 81-83, 85 and 88, Botcharoff ('920) discloses an ozone-producing air purifier (see entire document, particularly Figures 1 and 4, and Col. 1 lines 3-5 and 8-23), comprising:

a UV lamp (14) that generates ozone-producing radiation when energized, the UV lamp having a longitudinal axis (see entire document, particularly Figures 1 and 4, and Col. 1 lines 38-41),

an airflow-preventing enclosure having a longitudinal axis (see Figure 4),
comprised of:

a first cylinder/pipe (12) having a first cylinder sidewall, having a first window (42) in the first cylinder sidewall, and being fixed disposed about the longitudinal axis (see Figure 4);

the lamp (14) being disposed along the longitudinal axis and within the first cylinder (12).

Botcharoff ('920) does not appear to specifically teach that there is a second cylinder/pipe having a second cylinder sidewall, having a second window in the second cylinder sidewall, being rotatably disposed about the longitudinal axis and disposed concentrically within the first cylinder, nor that rotating the second cylinder changes an amount of overlap of the first and second windows/openings, the changing the amount of window overlap adjusts an amount of ozone-producing radiation being emitted through the overlap, or that the openings/windows is a tapered slot.

As to the limitation that there is a second cylinder/pipe having a second cylinder sidewall, having a second window in the second cylinder sidewall, and being rotatably disposed about the longitudinal axis and disposed concentrically within the first cylinder, it was well known in the art at the time of invention to provide a covering cylinder to an ozone-producing lamp to control the amount of ozone being produced by controlling the amount of radiation being emitted. McMillan ('748) exemplifies an airflow-preventing enclosure (T; see Figures 2-3 and 5) which completely encloses a UV lamp (V) except an opening (i.e. exposed/unenclosed portion when the enclosure is not fully extended to cover the entire length of the lamp) which directly exposes a portion of the UV lamp through any such opening, comprising cylinders (61-63 of T, where 61 or 62 is disposed concentrically with the first cylinder 63) with an adjustment member (66a) - in the form of a knob/handle - connected to a cylinder (63) (where the adjustment member 66a is capable of rotating the cylinder) are utilized to enclose longitudinal portion of the ozone-producing UV lamp (V) within the cylinders (61-63) (see Figures 2 and 5) in order to

control the level of ozone formed in the gas by controlling the surface area of the lamp (V) exposed to the gas (see entire document, particularly Col. 5 lines 51-66).

However, McMillan ('748) does not appear to specifically teach that any one of the cylinder sidewalls possesses a window in the cylinder sidewall, being rotatably disposed about the longitudinal axis, nor that rotating a cylinder specifically changes an amount of overlap of the first and second windows/openings, the changing the amount of window overlap adjusts an amount of ozone-producing radiation being emitted through the overlap, or that the windows/openings are tapered.

It was well known in the art (of enclosure and emitting a material to an environment from within an enclosure art) at the time of invention to provide a second cylinder, with a second opening, disposed along a longitudinal axis and concentrically with an existing cylinder with windows/openings to controlling an emission. Meek ('225) discloses an enclosure for emitting a material into the environment (see Figures 1-6) comprised of:

an airflow-preventing enclosure (see Figures 1-6) which completely encloses an enclosed object (13) except the overlap which directly exposes a portion of the object through any such overlap (see Figures 1-6), comprising:

a first cylinder (10; 33) having a first cylinder sidewall (12; 34), having a first window (11; 35) in the first cylinder sidewall (12; 34), and being fixedly disposed about the longitudinal axis (see Figures 1 and 5);

a second cylinder (14; 39) having a second cylinder sidewall, having a second window (15; 40) in the second cylinder sidewall (see Figures 1 and 5),

and being rotatably disposed about the longitudinal axis and disposed concentrically with the first cylinder (10, 33) (see Figures 2A-2C and Figure 5), where rotation the second cylinder changes an amount of overlap of the first and second windows/openings, in order that changing the amount of window overlap adjusts an amount of material being emitted (see entire document, particularly Figures 1, 2A-2C and 5, Col. 2 lines 9-24, Col. 3 lines 8-46, and Col. 4 lines 31-56).

Meek ('225) further exemplifies that shape of the windows/openings is changed to provide a tapered shape opening (see Figure 6) rather than circular openings/windows as an alternate, known configuration in order to facilitate the ability to adjust the windows to predetermined partial open positions so as to permit greater accuracy and control in the opening during the overlap (see entire document, particularly Col. 4 lines 57-74).

Thus, it would have been obvious to one of ordinary skill in this art at the time of invention to provide a second cylinder, with a second window and being rotatably disposed about the longitudinal axis and concentrically disposed with each other, where the rotation of the second cylinder changes an amount of window/opening rotatably overlap and the openings are tapered shape, in the purifier of Botcharoff as modified by McMillan to additionally cover the exposed portions of lamp in order to further control the level of ozone formed in the gas by limiting the surface area of the lamp/object exposed to the gas as exemplified by Meek.

Moreover, as to the limitation that only one window/opening slot is located in the cylinders to allow emission of light emission, it was known in the art (of controlling amount of light emitted from a light source) at the time of invention to provide only a single slot with a light source/lamp. Hayes ('990) discloses that a slot (13) is provided with a lamp (11) in order to control/limit the amount of light radiation passed through (see entire document, particularly Abstract and Col. 2 lines 19-21). It would have been obvious to one of ordinary skill in this art at the time of invention to provide a single slot in the first and second cylinders of Botcharoff as modified by McMillan and Meek in order to block/permit the passage of light radiation beyond the slot so as to limit the amount of light radiation being passed through as shown by Hayes.

As to Claim 74, Botcharoff ('920) discloses that the ozone-producing air purifier is further comprised of:

- a base (18); and

- a first lamp holder (10) structured for securing the lamp (14) to the base (18).

As to Claim 80, while Meek ('225) further exemplifies that the windows/openings is changed to provide a tapered opening (see Figure 6) and Hayes ('990) disclosing the opening being a slot, neither appears to specifically teach that the opening is a non-linear taper shape. However, it would have been well within the purview of one of ordinary skill in the art to provide a tapered non-linear slot shape rather than the tapered linear, rounded triangular shape as a known, alternate shape in order to provide an

opening/window to allow limited emission of the material/radiation from within the cylinders through partial open positions from the overlap. Only the expected results would be attained.

As to Claims 93 and 96, Botcharoff ('920) discloses that the ozone-producing air purifier (see Figure 1) is further comprised of:

- an electrical connector (30) for supplying electricity to the UV lamp (14), the electrical connector (30) being removable and independent of the first cylinder (12);

- a plate (18 with 20 and 26) structured for securely attaching the ozone-producing air purifier (see Figures 1 and 4, where 93 securely holds the device/purifier) to a wall (90 is located as a part of a wall/dashboard) of an airflow passageway (which is deemed to be the cabin of an automobile, see Col. 1 lines 54-65).

As to Claim 94, Botcharoff ('920) discloses that the ozone-producing air purifier (see Figure 1) is further comprised of:

- an electrical connector (30) for supplying electricity to, and being detachable from, the UV lamp (14);

- a chassis (10) structured for mounting the first cylinder (12) thereto; and

- an attachment structure (30, 38, 34-36, 24, 18; see Figure 1) mounted to the chassis (10) for securely holding the UV lamp (14) within the first cylinder (12).

Thus, Claims 71, 74, 77, 80-83, 85, 88, 93-94 and 96 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Botcharoff ('920), Meek ('225), McMillan ('748) and Hayes ('990).

12. Claims 71, 74-77, 80-81, 85, 88, 93-94 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (20020098109) in view of Hayes (3668990) and Meek (2738225).

As to Claims 71, 77, 81, 85 and 88, Nelson ('109) discloses an ozone-producing air purifier (100D, for example) (see entire document, particularly Figures 18-19), comprising:

- a longitudinal axis (see Figure 18-19);

- a first cylinder (72, 166) and second cylinder (178) that are disposed about the longitudinal axis (see Figures 8, 16-17 and 20-22),

- the first cylinder (72; 166) being fixedly disposed, having a first cylinder sidewall and having a first window (174) in the first cylinder wall (see Figures 8 and 20-22 and p.5 [0062]); and

- a UV lamp (36) that generates ozone-producing radiation when energized, the UV lamp (36) being disposed along the longitudinal axis (see entire document, particularly Figures 12, 15 and 18-19).

Nelson ('109) does not appear to specifically teach that there is a second cylinder which is rotatably disposed, having a second cylinder sidewall and having a second window in the second cylinder sidewall, nor that a first cylinder and second cylinder are

coaxially/concentrically disposed about the longitudinal axis, nor that the rotation of the second cylinder changes an amount of overlap of the first and second windows, or that at least one of the windows is a tapered slot.

As to the limitation that only one window/opening slot is located in the cylinders to allow emission of light emission, it was known in the art (of controlling amount of light emitted from a light source) at the time of invention to provide only a single slot with a light source/lamp. Hayes ('990) discloses that a slot (13) is provided with a lamp (11) in order to control/limit the amount of light radiation passed through (see entire document, particularly Abstract and Col. 2 lines 19-21). It would have been obvious to one of ordinary skill in this art at the time of invention to provide a single slot in the first cylinder of Nelson as a known alternate shape of opening in order to block/permit the passage of light radiation beyond the slot so as to limit the amount of light radiation being passed through as shown by Hayes.

While Hayes ('990) discloses that gates (14) are utilized to cover/block the slot opening to control/block the light radiation being emitted, neither Nelson ('109) nor Hayes ('990) appears to specifically teach that a second cylinder with a second opening/window is utilized to control/block light being emitted from the first opening/window.

As to the limitation that there is a second cylinder which is rotatably disposed, having a second cylinder sidewall and having a second window in the second cylinder sidewall, where the first cylinder and second cylinder are coaxially/concentrically disposed about the longitudinal axis and that the rotation of the second cylinder

changes an amount of overlap of the first and second windows, it was well known in the art (related to enclosures and of emitting a material to an environment from within an enclosure) at the time of invention to provide a second cylinder disposed along a longitudinal axis and concentrically with an existing cylinder with windows/openings to controlling an emission. Meek ('225) exemplifies an enclosure for emitting a material into the environment (see Figures 1-6) comprised of:

an airflow-preventing enclosure (see Figures 1-6) which completely encloses an enclosed object (13) except the overlap which directly exposes a portion of the object through any such overlap, comprising:

a first cylinder (10; 33) having a first cylinder sidewall (12; 34), having a first window (11; 35) in the first cylinder sidewall (12; 34), and being fixedly disposed about the longitudinal axis (see Figures 1 and 5);

a second cylinder (14; 39) having a second cylinder sidewall, having a second window (15; 40) in the second cylinder sidewall (see Figures 1 and 5), and being rotatably disposed about the longitudinal axis and disposed concentrically with the first cylinder (10, 33) (see Figures 2A-2C and Figure 5), where rotation the second cylinder changes an amount of overlap of the first and second windows/openings,

in order that the changing the amount of window overlap adjusts an amount of material being emitted through the overlap (see entire document, particularly Figures 1, 2A-2C and 5, Col. 2 lines 9-24, Col. 3 lines 8-46, and Col. 4 lines 31-56).

As to the limitation that the opening/window is a tapered shape, Meek ('225) further exemplifies that the windows/openings is changed to provide a tapered shaped opening (see Figure 6) rather than circular openings/windows as an alternate, known configuration in order to facilitate the ability to adjust the windows to predetermined partial open positions so as to permit greater accuracy and control in the opening during the overlap (see entire document, particularly Col. 4 lines 57-74).

Thus, it would have been obvious to one of ordinary skill in this art at the time of invention to provide a second cylinder with the first cylinder of Nelson as modified by Hayes to cover the exposed portion of lamp through the first window/opening in order to limit ozone formed in the gas by further controlling the surface area of the lamp exposed to the gas so as to further finely adjust the amount of material/radiation contained/located within the cylinders to be emitted as exemplified by Meek.

As to Claims 74-75, Nelson ('109) discloses that the ozone-generation producing air purifier (see entire document, particularly Figures 12-22) is further comprised of:

a base (100D, 140);

a first lamp holder (164, 166, 170, 172) structured for securing the UV lamp (36) to the base (140, 100D) (see Figures 12, 15, 20-22),

wherein the base (100D) is structured for being mounted into an HVAC duct (see p. 14 [0106]).

As to Claim 76, Nelson ('109) discloses that the ozone-producing purifier (see entire document, particularly Figures 12-22) is further comprised of a germicidal lamp and a second lamp holder structured for securing the germicidal lamp to the base (see Figures 16-17 and p.5 [0062], specifically last 6 lines at the bottom of the 1st column).

As to Claim 80, while Meek ('225) further exemplifies that the windows/openings is a tapered opening (see Figure 6), this tapered opening is not specifically discloses as a non-linear taper shape. However, it would have been well within the purview of one of ordinary skill in the art to provide a tapered non-linear slot shape rather than the tapered linear, rounded triangular shape as a known, alternate shape in order to provide an opening/window to allow limited emission of the material/radiation from within the cylinders through partial open positions from the overlap. Only the expected results would be attained.

As to Claims 93-94, Nelson ('109) discloses that the ozone-producing purifier (100D) is further comprised of:

an electrical connector (106) for supplying electricity to the UV lamp (36), the electrical connector being removable and independent of the cylinders (see Figures 13, 18-19 and 20-22),

a chassis (140, 100D) structured for mounting the first cylinder (166) thereto (see Figures 15, 18-19 and 20-22); and

an attachment structure (170, 172) mounted to the chassis (140) for securely holding the UV lamp (36) within the cylinder (166).

As to Claim 96, Nelson ('109) discloses that the ozone-producing purifier (100D) is further comprised of a plate (any one of the sidewall of 100D - 112) structured for securely attaching the ozone-producing air purifier to a wall of an airflow passageway (see entire document, particularly Figures 18-19 and 29-31, p.14 [0106]-[0107] and p. 20 [0136]).

Thus, Claims 71, 74-77, 80-81, 85, 88, 93-94 and 96 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Nelson ('109), Hayes ('990) and Meek ('225).

13. Claims 72-73, 78-79, 86-87, 89-92 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Botcharoff (3905920) in view of Meek (2738225), McMillan (3752748) and Hayes (3668990) or Nelson (20020098109) in view of Hayes (3668990) and Meek (2738225) as applied to claims 71, 77, 85 and 88 above, and further in view of Saeki (JP 09-169503) and Bulsink (6514467).

Botcharoff ('920), Meek ('225), McMillan ('748) and Hayes ('990) are relied upon for disclosure described in the rejection of claims 71, 77, 85 and 88 under 35 U.S.C. 103(a).

Nelson ('109), Hayes ('990) and Meek ('225) are relied upon for disclosure described in the rejection of claims 71, 77, 85 and 88 under 35 U.S.C. 103(a).

Neither Botcharoff ('920) nor Nelson ('109) nor Meek ('225) nor McMillan ('748) or Hayes ('990) appears to specifically teach that the ozone-producing air purifier is further comprised of:

a shaft affixed at its proximal end to the second cylinder, the shaft extending in parallel with the longitudinal axis; nor

a knob affixed to a distal end of the shaft, where rotation of the knob effects rotation of the second cylinder.

As to the limitation that a shaft is affixed at its proximal end to a cylinder, the shaft extending in parallel with a longitudinal axis of an UV lamp that produces ozone, it was known in the art at the time of invention to provide a shaft at its proximal end to a surface to rotate an object. Saeki ('503) discloses an ozone-producing air purifier (see Drawing 2) comprised of:

a UV lamp (10) that generates ozone producing radiation (see Abstract);

a shaft (44) affixed at its proximal end to a surface (on 42 via 45), the shaft (44) extending in parallel with the longitudinal axis of the UV lamp (10), while being radially offset from the longitudinal axis;

a handle (49) affixed to a distal end of the shaft (44) (see Drawing 2), wherein the rotation of the handle effects the rotation of the surface (45); and

a plate (47) having an arcuate opening/slot having an arc (see Drawing 2B) through which the distal end of the extension (44) extends through the arcuate

opening/slot (see Drawing 2A), the arcuate opening being radially offset from the longitudinal axis along which the UV lamp (10) is located, and wherein the distal end of extension moves along the arc as the surface (42 via 45) travels/rotates,

in order to limit the UV radiation emitted from the lamp to control the ozone being produced (see Drawing 2, Abstract and paragraph [0022] of the English translation).

It would have been obvious to one of ordinary skill in this art at the time of invention to provide a shaft and a handle, affixing them to the second cylinder and located with a plate having an arcuate opening/slot radially offset from a longitudinal axis in the air purifier of Botcharoff as modified by Meek, McMillan and Hayes or Nelson as modified by Hayes and Meek in order to rotate the second cylinder so as to limit the amount of UV lamp being exposed to gas and control the amount of ozone being produced by the radiation emitted as shown by Saeki.

As to the limitation that a knob is provided with the air treatment device in the form of an ozone-producing air purifier, it was known in the art at the time of invention to provide a turning knob with an air treatment device. Bulsink ('467) discloses an air treatment similar to that of Meek ('225), comprised of:

a first cylinder (26) having a first cylinder sidewall, comprised of a first window (28) in the first cylinder sidewall, and being fixedly disposed about the longitudinal axis;

a second cylinder (27) having a second cylinder sidewall, comprised of a second window (28) in the second cylinder sidewall, and being rotatably disposed about the longitudinal axis within the first cylinder (see Figure 6); and

a knob affixed at its proximal end to the second cylinder (27), where rotation of the knob effects rotation of the second cylinder and correspondingly changes an amount of overlap of the first and second windows (see entire document, particularly Col. 4 lines 6-18),

in order to adjust the amount of the opening in the overlap between the first and second windows so as to control amount of material being released from the object located within the cylinders to the exterior environment.

Thus, it would have been obvious to one of ordinary skill in this art at the time of invention to provide a knob rather than a handle in the air purifier of Botcharoff as modified by Meek, McMillan and Hayes, or Nelson as modified by Meek and Hayes, and further modified by Saeki as an alternate means of rotating a structure as shown by Bulsink in order to adjust the amount of opening/overlap remotely (i.e. not directly touching the cylinders) to control the amount of ozone being produced by the lamp by limiting the amount of the radiation that is released from the lamp to the exterior environment.

Thus, Claims 72-73, 78-79, 86-87, 89-92 and 95 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Botcharoff ('920), Meek ('225), McMillan ('748) and Hayes ('990), or Nelson ('109), Hayes ('990) and Meek ('225), Saeki ('503) and Bulsink ('467).

14. Claims 82-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (20020098109) in view of Hayes (3668990), Meek (2738225) and Bulsink (6514467).

As to Claims 82-83, Nelson ('109) discloses an ozone-producing air purifier (100D, for example) (see entire document, particularly Figures 18-19), comprising:

a lamp (36) for emitting ozone-producing radiation (see entire document, particularly Figures 12, 15 and 18-19); and

a first pipe (72, 166) and second pipe (178) having first and second openings (either openings that allow the lamp to be inserted or 174) (see Figures 8, 16-17 and 20-22 and p.5 [0062]).

Nelson ('109) does not appear to specifically teach that the first and second pipes encloses the lamp and are concentrically arranged with respect to one another, nor that there is an adjustment member, in the form of a knob, a handle or a lever, which is connected to the first pipe for rotating the first opening with respect to the second opening, the rotating thereby adjusting an overlap for the first and second openings, wherein the adjusting the overlap changes an amount of ozone-producing radiation being emitted via the overlap.

As to the limitation that only one opening is located in each of the pipes to allow emission of light emission, it was well known in the art (of controlling amount of light emitted from a light source) at the time of invention to provide only a single slot with a light source/lamp. Hayes ('990) exemplifies that one opening (13) is provided with a lamp (11) in order to control/limit the amount of light radiation passed through (see

entire document, particularly Abstract and Col. 2 lines 19-21). It would have been obvious to one of ordinary skill in this art at the time of invention to provide a single opening in the first pipe of Nelson in order to block/permit the passage of light radiation beyond the opening so as to limit the amount of light radiation being passed through as exemplified by Hayes.

While Hayes ('990) discloses that gates (14) are utilized to cover/block the slot opening to further control/block the light radiation being emitted, neither Nelson ('109) nor Hayes ('990) appears to specifically teach that a second pipe with a second opening/window is utilized to control/block light being emitted from the first opening/window.

As to the limitation that there is a second pipe with a second opening which is rotatably and concentrically disposed with respect to the first pipe, where the rotation of one pipe changes an amount of overlap of the first and second openings, it was well known in the art (relating to enclosures and emitting a material to an environment from within enclosures) at the time of invention to provide a second pipe disposed along a longitudinal axis and concentrically with an existing pipe with openings to controlling an emission. Meek ('225) exemplifies an enclosure for emitting a material into the environment (see Figures 1-6) comprised of:

- a first pipe (14; 39) having a first opening (15; 40); and
- a second pipe (10; 33) having a second opening (11; 35) (see Figures 1 and 5);

where the first and second pipes are disposed concentrically with the respect to one another (see Figures 1, 2A-2C and Figure 5), and

the two pipes are rotatably disposed about a longitudinal axis (see Figures 2A-2C and Figure 5), where rotation the first pipe changes an amount of overlap of the first and second openings,

in order that the changing the amount of window overlap adjusts an amount of material being emitted through the overlap (see entire document, particularly Figures 1, 2A-2C and 5, Col. 2 lines 9-24, Col. 3 lines 8-46, and Col. 4 lines 31-56).

Thus, it would have been obvious to one of ordinary skill in this art at the time of invention to provide a concentrically disposed pipe with the first pipe of Nelson as modified by Hayes to additionally cover the remaining exposed portions of lamp through the first opening in order to further adjust the surface area of the object/lamp exposed to the gas from within the pipes as exemplified by Meek so as to limit ozone formed in the gas.

As to the limitation that that the ozone-producing air purifier is further comprised of an adjustment member, in the form of a knob, a handle or a lever, which is connected to the first pipe for rotating the first opening with respect to the second opening, it was known in the art at the time of invention to provide a turning knob with an air treatment device.

Bulsink ('467) discloses an air treatment similar to that of Meek ('225), comprised of:

- a first pipe (27) having a first opening (28);
- a second pipe (26) having a second opening (28),

where the first pipe (27) is rotatably and concentrically disposed about the longitudinal axis of the second pipe (26) (see Figure 6); and

a knob connected to the first pipe (27), where rotation of the knob effects rotation of the first pipe (27) and correspondingly changes an amount of overlap of the first and second openings (see entire document, particularly Col. 4 lines 6-18),

in order to adjust the amount of the opening in the overlap between the first and second windows so as to control amount of material being released from the object located within the cylinders to the exterior environment.

Thus, it would have been obvious to one of ordinary skill in this art at the time of invention to provide a knob in the air purifier of Nelson as modified by Meek and Hayes as the means of rotating a pipe with an opening in order to adjust the amount of opening/overlap remotely (i.e. not directly touching the pipes) as shown by Bulsink so as to control the amount of ozone being produced by the lamp by limiting the amount of the radiation that is released from the lamp to the exterior environment.

As to Claim 84, Nelson ('109) discloses that the ozone-producing purifier (100D) is further comprised of a base (any one of the sidewalls or end walls of 100D), the base structured for securely lamp and the pipe thereto, the base being adapted for securing the lamp completely within an HVAC duct (see entire document, particularly Figures 18-19 and 29-31, p.14 [0106]-[0107] and p. 20 [0136]).

Thus, Claims 82-84 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Nelson ('109), Hayes ('990), Meek ('225) and Bulsink ('467).

15. Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Botcharoff (3905920) in view of Meek (2738225), McMillan (3752748) and Hayes (3668990) or Nelson (20020098109) in view of Hayes (3668990), Meek (2738225) and Bulsink (6514467) as applied to claim 82 above, and further in view of Disabito (6809326).

Botcharoff ('920), Meek ('225), McMillan ('748) and Hayes ('990) are relied upon for disclosure described in the rejection of claim 82 under 35 U.S.C. 103(a).

Nelson ('109), Hayes ('990), Meek ('225) and Bulsink ('467) are relied upon for disclosure described in the rejection of claim 82 under 35 U.S.C. 103(a)

Neither Botcharoff ('920) nor Meek ('225) nor McMillan ('748) nor Hayes ('990) or Bulsink ('467) appears to specifically teach that the ozone-producing air purifier is further comprised of a base structured for fixing the lamp and second pipe thereto, the base being adapted for securing the lamp completely within an HVAC duct.

It was well known in the art at the time of invention to provide a base structured for fixing a lamp and a pipe thereto, the base being adapted for securing the lamp completely within an HVAC duct. Disabito ('326) exemplifies an air purifier (see Figure 1) comprised of a UV lamp (20), a base (30) structured for fixing the lamp (20) and a pipe (44) thereto, the base (30) being adapted for securing the lamp (20) completely

within an HVAC duct (12) in order to provide a modular UV light air treatment system for disinfecting and purifying air passing through a confined space such as a conduit or a HVAC duct (see entire document, particularly Figure 1, Col. 1 lines 8-15 and Col. 2 lines 57-67).

It would have been obvious to one of ordinary skill in this art at the time of invention to provide a base structured for fixing a lamp and a pipe thereto, the base being adapted for securing the lamp completely within an HVAC duct for the air purifier of Botcharoff as modified by Meek, McMillan and Hayes, or Nelson as modified by Meek, Hayes and Bulsink, in order to purify air within a confined space such as within a HVAC duct as exemplified by Disabito.

Thus, Claim 84 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Botcharoff ('920), Meek ('225), McMillan ('748), Hayes ('990) and Disabito ('326), or Nelson ('109), Hayes ('990), Meek ('225), Bulsink ('467) or and Disabito ('326).

Response to Arguments

16. Applicant's arguments with respect to claims 59-70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REGINA YOO whose telephone number is (571)272-6690. The examiner can normally be reached on Monday-Friday, 10:00 am - 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RY

/Jill Warden/
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